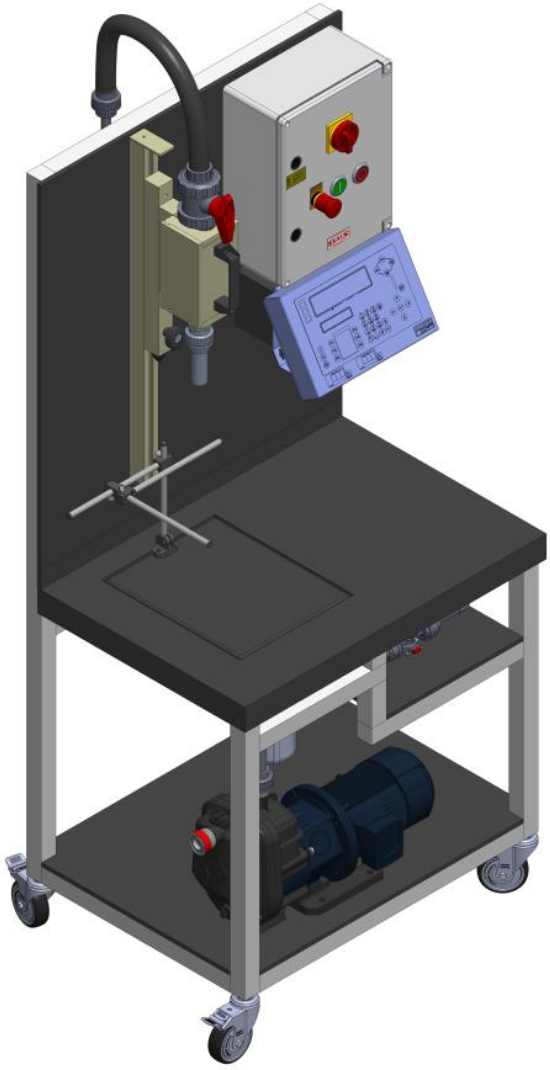
Semi-automatic filling system
FLUX-FILL-GT
Operation manual



Part number:	72-000126	Customer :	
Serial no.:		Order no.:	
		Rev:	00 / 20.03.2024

Content

1. Basic Details

1.1 Hints for the IOM

These operating instructions were developed in accordance with the product-specific and usage-related requirements of laws, ordinances, regulations, technical standards, guidelines and contracts.

The operating instructions must be read carefully before commissioning and must always be available to the operator!

It must be ensured that the operating instructions have been read and understood before carrying out any work on and with the control.

These operating instructions contain basic information about the filling system and are only valid together with the individual operating instructions for the installed components such as:

- BA Magnetic centrifugal pump MAGSON MAS
- BA Weighing system

1.2 Current at time of printing

Technical data as well as dimensions and weight information apply as of the day these operating instructions were printed. The data listed may differ in detail from the respective pump version without fundamentally changing the factual information.

1.3 Intended use

The filling system shall only be used for filling liquids and chemicals of water-like viscosity without coarse solids.
Before use, the resistance of the materials used with the fluid must be checked. For a list of materials in contact with the fluid, see chapter 3.3.

In case of doubt, ask the manufacturer for release.

Use with different media is not permitted.

The filling system may only be installed and operated on substrates that are approved according to WHG for the media used.

Do not use the filling system for:

- # Flammable or explosive media
- # Solid or abrasive media
- # Media containing magnetizable metal particles
- # Media used in connection with food processing. The pump is not FDA or EC 1935 / 2004 certified.

If the pump is to be used for solids / abrasive media please consult the manufacturer.

1.4 Forseeable misuse

The following scenarios are considered misuse:

- # Any improper use
- # Operation outside the defined limits

1.5 Limits

Spatial boundaries

Technical data: refer to ↗page 25,

Additional boundaries

Ambient temperature: 0 °C to +40 °C

1.6 Warranty and liability

The filling system must only be used in accordance with the intended use defined in these operating instructions. Warranty claims that arise due to improper operation and inadequate maintenance will not be accepted.

1.7 Contact details

FLUX-GERÄTE GMBH
Process Pumps & Systems

August-Horch-Straße 2
51149 Cologne - GERMANY

Phone: +49 (0) 2203 9394-0
Fax: +49 (0) 2203 9394-48

Info-process@flux-pumpen.de
www.flux-pumps.com

2. Security

2.1 Personnel qualifications and training

The personnel for operation, maintenance, inspection and assembly must have the appropriate qualifications for this work.

The operator's area of responsibility, responsibility and supervision of personnel must be precisely regulated. If the staff does not have the necessary knowledge, they must be trained and instructed. If necessary, this can be done by the manufacturer/supplier on behalf of the operator of the machine. Furthermore, the operator must ensure that the contents of the operating instructions are fully understood by the staff.

2.2 Dangers if the safety instructions are not followed

Failure to observe the safety instructions can result in danger to people as well as to the environment and the machine. Failure to follow the safety instructions may result in the loss of any claims for damages.

In particular, non-compliance can result in the following dangers, for example:

- Failure of important functions of the machine/system.
- Failure of prescribed maintenance and repair methods.
- Danger to people from electrical, mechanical, magnetic and chemical influences.
- Danger to the environment due to leakage of dangerous substances.

2.3 Safety-conscious work

The safety instructions listed in these operating instructions, the existing national regulations for accident prevention and any internal work, operating and safety regulations of the operator must be observed.

2.4 Safety instructions for operators/operators

Hazards caused by electrical energy must be excluded (for details, see, for example, the regulations of the VDE and the local energy supply companies)

2.5 Safety instructions for maintenance, inspection and assembly work

The operator must ensure that all maintenance, inspection and assembly work is carried out by authorized and qualified specialist personnel who have obtained sufficient information through detailed study of the assembly and operating instructions.

In principle, work on the machine should only be carried out when it is at a standstill. The procedure for shutting down the machine described in the assembly and operating instructions must be strictly followed.

Immediately after completion of the work, all safety and protective devices must be reinstalled or put into operation.

2.6 Unauthorized conversion and spare parts production

Conversion or changes to the machine or device are only permitted after consultation with the manufacturer. Original spare parts and accessories authorized by the manufacturer serve to ensure safety. The use of other parts may eliminate liability for the resulting consequences.

2.7 Impermissible operating methods

The operational safety of the delivered machine or device is only guaranteed when used as intended in accordance with Section 1 “General” of the operating instructions. The limit values stated in the data sheet must under no circumstances be exceeded.

2.8 Standards and guidelines

Description	Content
2006/42/EG	Directive 2006/42/EC of the European Parliament and of the Council of May 17, 2006 on machinery and equipment amendment of Directive 95/16/EC (recast) (1)
2014/30/EU	Directive 2014/30/EU of the European Parliament and of the Council of February 26, 2014 on the harmonization of the Legislation of the Member States on the electro-magnetic compatibility (new version)

Tab. 1: Guidelines

Description	Content
EN 61000-6-4:2007/ A1:2011	Electromagnetic compatibility (EMC) - Part 6-4: basic technical standards; Interference emissions for industrial areas
EN 61000-6-2:2005/ AC:2005	Electromagnetic compatibility (EMC) - Part 6-2: General standards - interference immunity for industrial areas
EN ISO 12100:2010-11	Safety of Machinery - General Design principles - risk assessment and Risk reduction (ISO 12100:2010)
EN 60204-1:2018	Safety of Machinery - Electrical Equipment of Machinery - Part 1: General requirements

Tab. 2: Normen

2.9 Design of the safety instructions

The safety instructions in this document are identified by safety symbols and are designed according to the SAFE principle. They contain information on the type and source of the danger, possible consequences and how the danger can be averted.

DANGER
Warns of an accident that will occur if instructions are not followed. The accident results in serious, possibly life-threatening injuries or death, e.g. by touching electrical units under high voltage.

WARNING
Warns of an accident that may occur if instructions are not followed. The accident can result in serious, possibly life-threatening injuries or death, e.g. by touching electrical units under high voltage.

CAUTION
Warns of an accident that may occur if instructions are not followed. The accident can result in minor injuries, e.g. B. Burns, skin injuries or bruises.

ATTENTION
Warns of possible property damage

NOTE
Important general note

2.10 Symbols used

Symbol	Description
↗	Cross-reference “see section “xx”, page “yy” “

Tab. 3: Symbols used

3. Technical description

3.1 General description

The semi-automatic filling system FLUX-FILL GT allows the fast, efficient and safe filling of low-viscosity fluids as well as slightly foaming fluids. The system uses calibration-precise weighing technology to enable filling in accordance with the German Packaging Ordinance (FPackV). The integrated filling program management allows easy filling of the fluids in a wide variety of containers using the mirror method. The system is therefore particularly suitable for filling small and medium-sized batches of containers, with and without container change – for internal use and sales.

The system consists of a stainless steel table which, depending on the equipment, can be equipped with the following options: 1) PE covers 2) Mobile version with 4 swivel castors with foot retention.

WARNING

When parking, always use the foot locks on both castors. Place only on horizontal surfaces.

A self-priming, magnetically coupled centrifugal pump is installed in the table, which feeds the fluid to the filling unit. The filling unit is height-adjustable via a slide with a clamping screw so that the outlet opening can be adapted to different canister heights.

The weight is recorded by means of a calibrated scale with dosing electronics.

When the desired filling weight is reached, the pump is switched off and the flow is interrupted in parallel by a solenoid valve.

Optionally, a filter chamber for a 10" filter cartridge with adapter 222 is installed in the filling line. With the filter cartridge inserted, the fluid can be filtered accordingly before filling.

WARNING

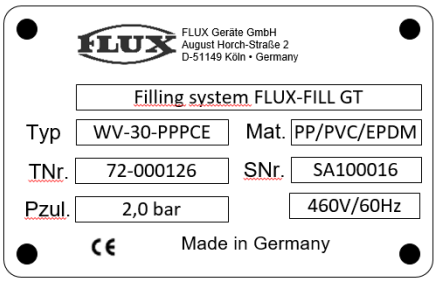
Hazards caused by chemical volatility of components

Be sure to check the chemical resistance of the materials used to your medium
Chemical volatility may lead to leakage of liquids
Possible risk to the environment and health
Consult the manufacturer in case of uncertainty

ADVICE

Chemical resistance of materials see resistance list from manufacturer, please request.

3.2 Nameplate



The type plate shows the exact type designation and the serial number.

In case of queries, re-orders and especially when ordering spare parts, please always indicate the serial number.

If you have any questions, please contact their supplier or the manufacturer.

3.3 Type code / Materials

The following wetted materials were used in the media-carrying components:

Overview of possible wetted materials:

Parts	Abbreviation	Material
Pump	PP	Polypropylen
	PTFE	Polytetrafluorethylen
	SIC	Siliciumcarbid
	AL-Oxid	Aluminium oxide 99,7%
	EPDM	Ethylene-Propylene-Dien-Rubber
Seals	EPDM	Ethylene-Propylene-Dien-Rubber
Pipes	PVC	Polyvinylchloride
Filter chamber	PPn	PP nature
Magnetic valve	PVC	Polyvinylchloride
piping	EPDM	Ethylene-Propylene-Dien-Rubber
Hoses	PVC	Polyvinylchloride
Table cover	PE	Polyethylene

WARNING

Hazards caused by chemical volatility of components

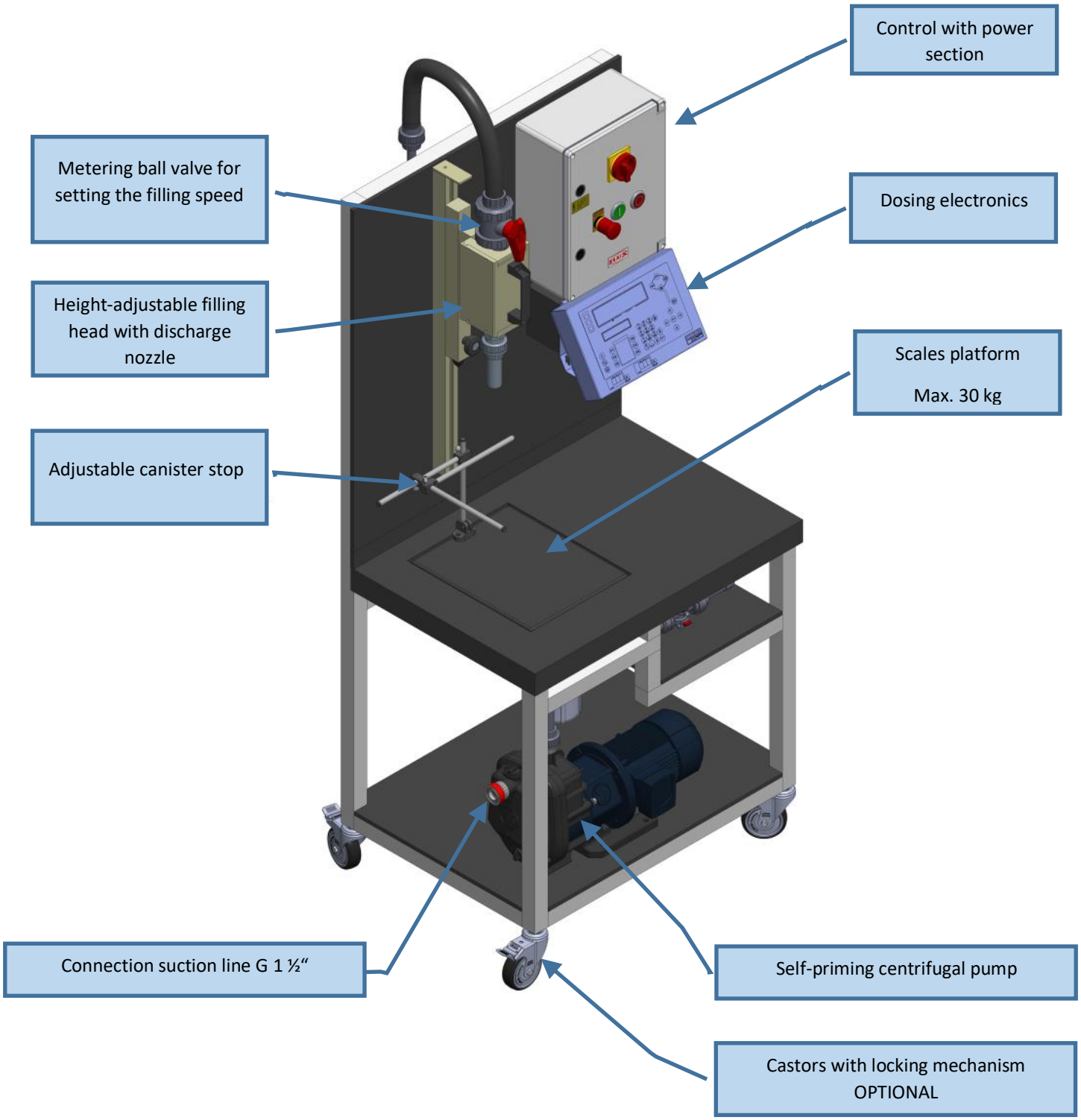
Be sure to check the chemical resistance of the materials used to your medium
Chemical volatility may lead to leakage of liquids
Possible risk to the environment and health
Consult the manufacturer in case of uncertainty

3.4 Specifications:

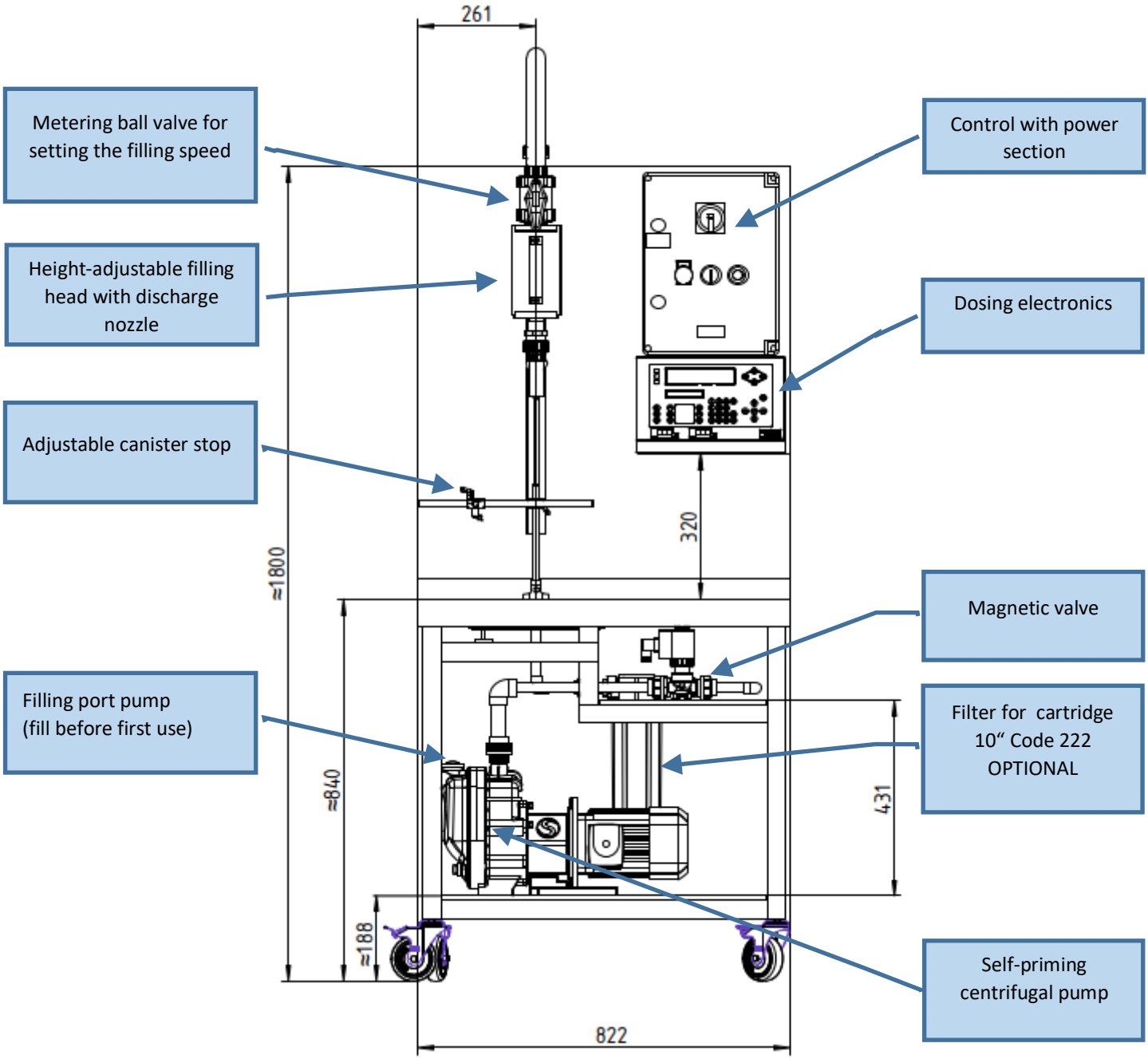
Type	Unity	Value
Ambient temperature	°C	5 – 35
Max. medium temperature	°C	60
Min. medium temperature	°C	0
Max. per. Viscosity of the medium	mPas	150
Max. system pressure	bar	2,0
Max. delivery capacity pump	l/min	100
Max. delivery hight pump	mWs	13
Max. suction hight pump	mWs	5
Suitable filter cartridges for filters in filling line		1x10“ cartridge 222 Ad.
Weighting range	kg	Max. 30 kg
Division of the balance		5 gr. to 15 kg
		10 gr. 15 - 30 kg
Platform size of the scale	mm	350 x 280
Number of depositable filling weights	qty.	500
Adjustment range Filling head (from table top)	mm	140 – 500 mm
Connection suction nozzle pump		G 1 ½“
Supply voltage	V/Hz	460V / 50Hz
Internal control voltage for valve / balance	V	24 VDC
Dimension filling table	mm	800 x 600 x 1850 mm
Unloaded weight (empty)	kg	210

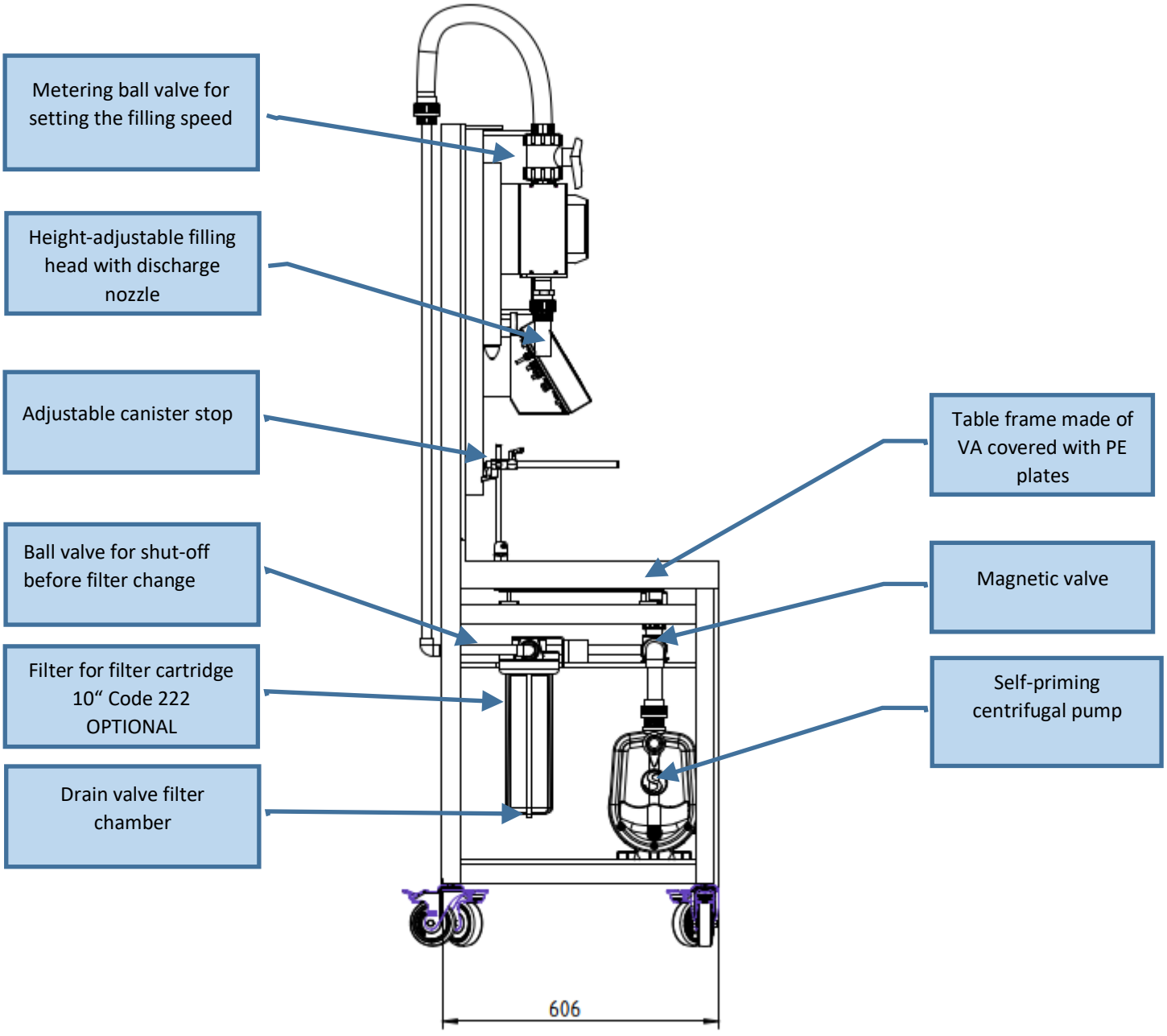
3.5 Overview

3.5.1 General overview



3.5.2 Views


Metering ball valve for setting the filling speed
Height-adjustable filling head with discharge nozzle
Adjustable canister stop
Filling port pump (fill before first use)
Control with power section
Dosing electronics
Magnetic valve
Filter for cartridge 10“ Code 222 OPTIONAL
Self-priming centrifugal pump
261
≈1800
320
≈840
≈188
431
822


Metering ball valve for setting the filling speed
Height-adjustable filling head with discharge nozzle
Adjustable canister stop
Ball valve for shut-off before filter change
Filter for filter cartridge 10“ Code 222 OPTIONAL
Drain valve filter chamber
Table frame made of VA covered with PE plates
Magnetic valve
Self-priming centrifugal pump
606

4. Transport/Intermediate storage

4.1 Transport

Unpack the device upon receipt and check for transport damage.

In the event of transport damage, an assessment of the facts must always be carried out by the transporter.

Make sure that nameplate information matches the ordering/design data.

Dispose of packaging material in accordance with local regulations.

4.2 Intermediate storage

Interim storage must be dry.

Temperature: -0 °C to 45 °C

Humidity: max. 95 % relative humid, non-condensing

5. Assembly

5.1 Safety instructions

WARNING

Danger (crushing) when assembling the components

Depending on the size of the pump, use load-carrying equipment or aids if necessary.
Assembly work may only be carried out by sufficiently qualified personnel.

WARNING

Danger (shock) caused by components falling or tipping over

Depending on the size of the pump, use load-carrying equipment or aids if necessary.
Assembly work may only be carried out by sufficiently qualified personnel.

5.2 Installations conditions

Choose as horizontal a location as possible for the filling table.

Be sure to adhere to the following values:

Ambient temperature: 5 °C to +35 °C

Max. Slope place of installation: 5%

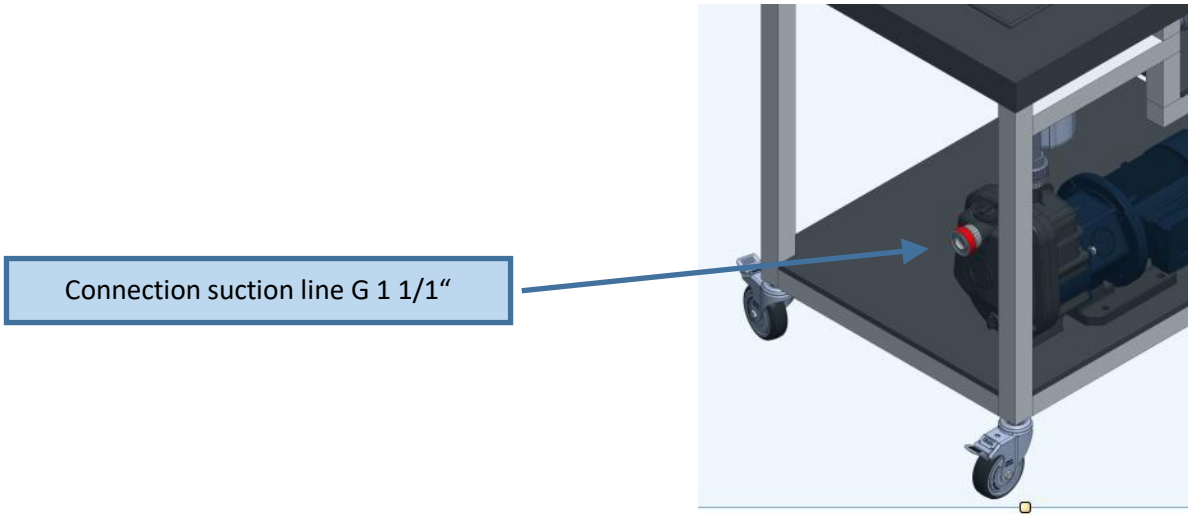
The filling table should be located near the tank or IBC where the medium is stored for filling so that the intake line between the receiving tank and the pump is not too long. The intake line should not exceed 5 m in length.

5.3 Mechanical assembly

The filling table is delivered ready for use – no further installation is required.

5.4 Connection suction line

The pump in the filling table is self-priming, the max. suction height is 5 mWs.



5.4.1 Hose assemblies for suction – pressure connection

- Use only vacuum-resistant hose lines as suction lines.
- When designing the hose assemblies, make sure that the flow resistance is kept as low as possible.
- Suction pipes must be vacuum-tight, ingress of air causes malfunction or may cause damage to the pump.

ATTENTION

Pay attention to vacuum-proof screw connection of the suction line!

If the suction line is leaking, the pump sucks poorly or not at all.

NOTE

A shut-off valve in the suction line must not be used to regulate the flow rate.

5.5 Electrical installation

5.5.1 Electrical connection

The filling system is internally wired and has a connection cable with CEE plug 3-Ph 460V / 60 Hz.

WARNING

Before connecting to the power supply, make sure that the main switch on the control unit is on OFF. Avoid uncontrolled start-up.

WARNING

Do not open the control/switch box. Danger from touching live parts.

Tighten loose connections. Replace damaged cables immediately.
Only carry out any work when the power supply is disconnected.
Cables must not be pinched or crushed. Cables must be laid in such a way that they do not create a tripping hazard or can be damaged.
Check electrical equipment regularly in accordance with the applicable national regulations (e.g. DGUV regulation 3 in Germany).
Work on the electrical equipment may only be carried out by authorized specialist personnel.

Before any intervention in the control, the supply voltage must have been switched off for at least 5 minutes.

- Make sure that the data stated on the nameplate corresponds to that of the existing power supply.

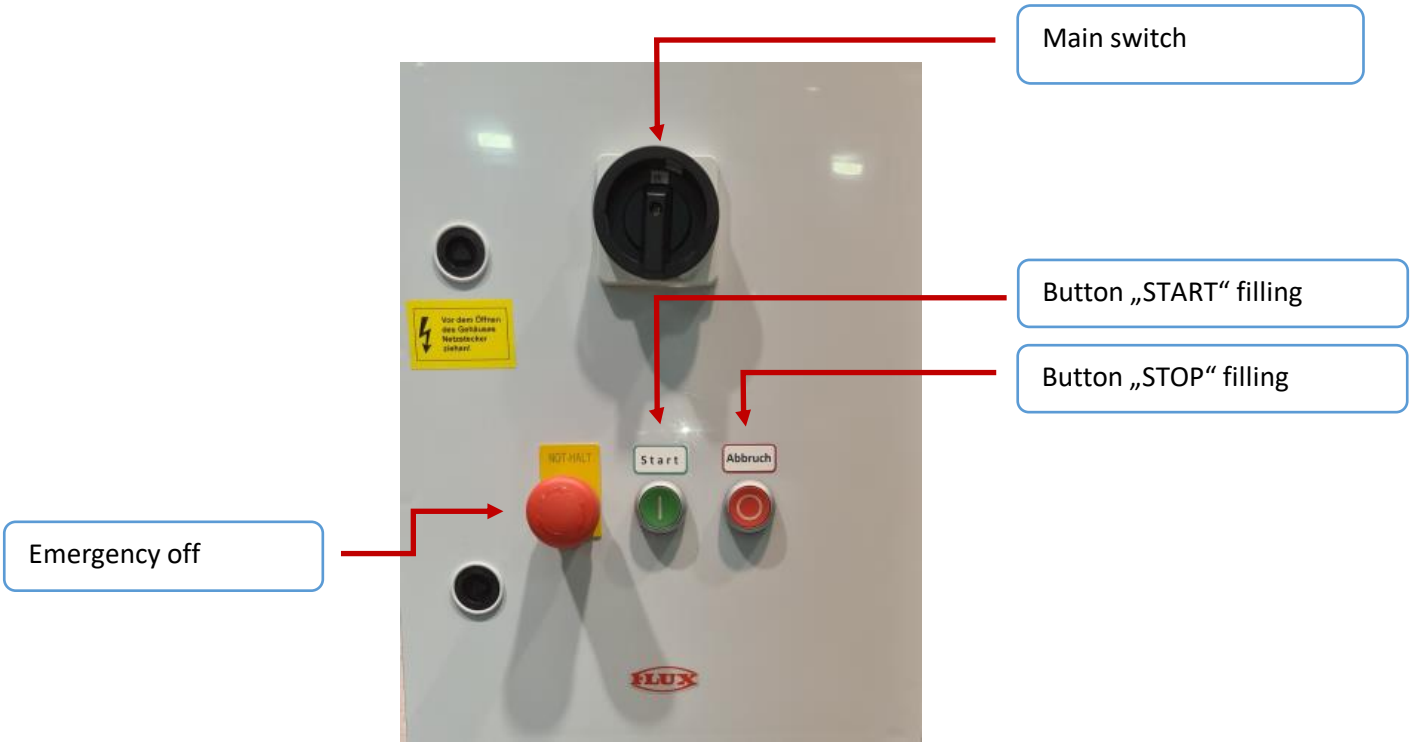
6. Description control / operation concept

6.1 General description

The control system consists of two units:

- The control with main switch and power part to switch the pump and the dosing valve.
- The scale electronics with dosing control

6.2 Control with power section



Main switch with emergency-off function

For switching on the power supply for the controller and the connected components.

EMERGENCY OFF button

To switch off the filling system in case of emergency.
Unlocking by turning and pulling the knob.

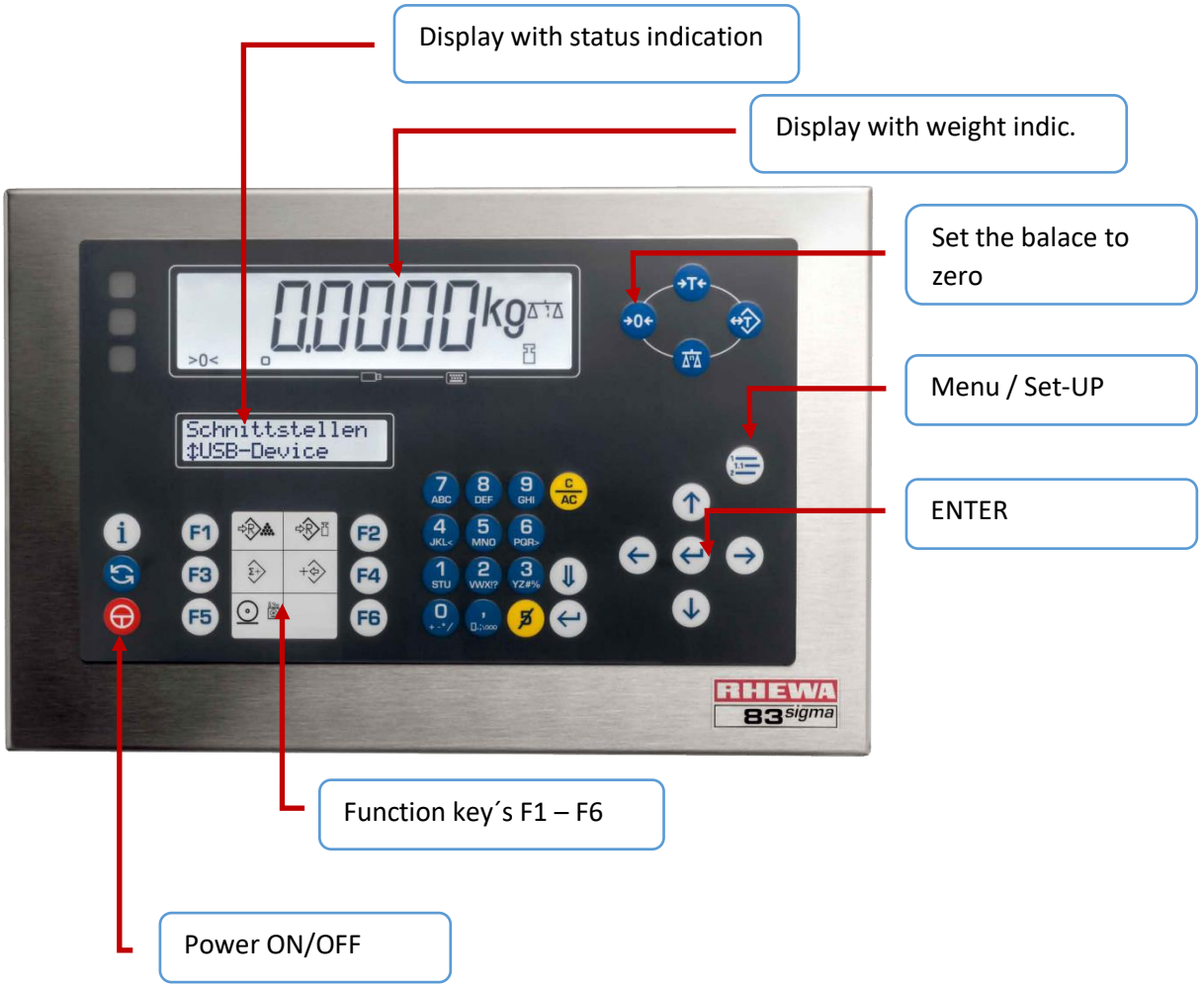
START

Starts filling when the balance is ready (scales are ready on the scale display). The pump is started, the solenoid valve opens – filling begins.

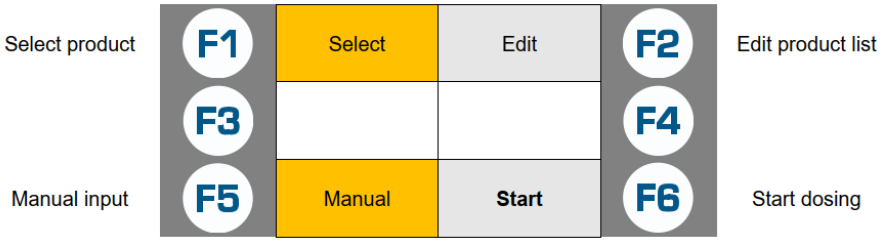
STOP

Stops or interrupts filling.

6.3 Scale electronics with metering control



Assignment of function keys F1 to F6:



F1 : Selection from a database with predefined product names and filling weights (max. 500 different products and filling quantities can be deposited)

F2 : Modification and completion of the database with the product list

F5 : Manual input of a target weight for a filling irrespective of the to execute database

F6 : Start of filling (same function as the green START button on the main control)

6.3.1 Filling using the parameters from the deposited database

In this mode, the data for the target weight and the net weight of the container (tare) are used from a database.

Operation	Info secondary display
Press the (F1) key. Any active dosing is cancelled. A message appears to set up an empty container.	Place empty container ↵
The query "Select" follows (product list in the indicator). The last selection is suggested.	Select 1 $5 kg olive oil
Enter the number of the selection or select (scroll) with the (↓) (↑) keys and confirm with (↵).	Select 4 $10 kg glass cleaner

6.3.2 Filling with manual input of filling weights

Operation	Info secondary display
Press the (F5) key. Any active dosing is cancelled. A message appears.	Place empty container ↵
Place the empty container on the scale and confirm with (↵). The empty weight of the container (tare) is saved.	Σ-net 0.320 kg
Enter the target value (target weight) and confirm with (↵).	Target [kg] 10
To avoid overfilling, the available weighing range is determined from the tare value, target value and max value of the weighing platform.	
If the **values are not plausible**, an error message is displayed.	Values out of range!
Check and correct entries or saved values. Restart the process.	
If the **values are plausible**, the message appears.	Waiting for start!

6.3.3 Tara Monitoring

The tare monitor checks the weight of the empty container and compares it with the stored weights in the database or with the stored tare weight when manually entered. In the Set-Up menu, a tolerance for the permitted deviation in % can be entered.

If the empty weight of the container is outside the tolerance, a message is sent and the filling does not start in order to prevent overfilling if the container is too small. This checks that the target weight matches the used container size.

6.3.4 Explanation of dosage parameters

Tare weight kg Weight of empty canister / bottle

Target weight kg Net filling weight

DosTol - - kg Not used in this execution – should be kept at 0.5 kg

DosTol - kg Set point for the closing dosing valve xx kg before the Target weight setpoint is reached because closing the valve requires time in which some liquid still flows

6.3.5 Start filling

Operation	Info secondary display
Tare monitoring is started with the F6 key or START Buttom in main cabinet.	Tare 0.300 kg 0.270 0.330 kg
If the tare value is outside the permitted tolerance, the red LED lights up briefly. The message must be confirmed with ↵.	Tare invalid! Press Enter!
Remove the container and set up the correct container. The operation must be confirmed with ↵.	Change container! Press Enter!
If the empty weight of the container is within the tolerances, the green LED lights up briefly. The container is tared and dosing is started.	
The flow will be opened and stoped until parmeter DosTol- is reached.	Target 10.000 kg 9.950 10.500 kg
If the DosTol- is exceeded, dosing is terminated automatically and checking the net filling weight is started.	
If the dosed value is within the tolerance, the green LED lights up. Confirm the net value with ↵.	Check and confirm net dosage!
Remove the filled container from the scale. Place the next empty container on the scale. Start further dosing with START buttom in main cabinet	

6.3.6 Adjust of tolerance for manual filling with F5

Operation	Info secondary display
Press 1 STU + F5 key in succession.	
The parameter Dos Tol - - is not used in this execution and should be keeped at 0.5 kg.	DosTol-- kg 0.5
Set the switch-off point for the flow. In the example, pump and valve stopps 0.1 kg before before the setpoint is reached because closing the valve requires time in which some liquid still flows.	DosTol- kg 0.1
The DosTol+ should be set at least as large as the DosTol-. It has no influence on the dosing accuracy!	DosTol+ kg 0.2

Note: The values set using keys 1 STU and F5 remain saved after the scale is switched off and do not need to be reset each time.

6.3.7 6.3.7 Setting the general parameters for tare deviation and manual / automatic net control

(2 WOT) + (F5) Changing the general (default) settings

Operation	Info secondary display
Press keyss (2 WOT) + (F5) in succession.	
General minus tolerance in % of the tare monitoring. Input max. 2 digits or confirm default value with (↵). This tolerance applies to both the manual function with (F5) and the database selection with (F1).	TareTol- [%] 10
General plus tolerance in % of the tare monitoring. Input max. 2 digits or confirm default value with (↵). This tolerance applies to both the manual function with (F5) and the database selection with (F1).	TareTol+ [%] 10
General setting for confirmation. If set to OFF, the net filling weight must be confirmed from operator with (↵). **Factory setting**.	AutoConf OFF ↕Off
Use the arrow keys (↓) (↑) to select ON and then confirm with (↵).	AutoConf ON ↕On

Note: The values set using the (2 WOT) + (F5) keys remain saved after the scale is switched off and do not need to be reset each time.

6.3.8 LED light on the dosing controller

Tare monitoring (TareTol - % Tare-Tol+ % e.g. 10%)

	Target range	
From 0 to TareTol. –	From TareTol.– toTareTol. +	Above TareTol. +

When operated using the (F5) (manual) key, the tare is saved once and used for tare monitoring before each subsequent start. When operated using the (F1) (select) key, the tare from the database is always used and is used for tare monitoring at each subsequent start.

Dosing (DosTol- value which is runnig out after closing dosing valve)

	Target range	
From 0 to DosTol. –	From DosTol. – to DosTol. +	Above DosTol. +

The dosing tolerances control the dosing unit

Signals after dosing is complete (net fill weight check)

	Target range	
From 0 to target value	From target to DosTol. +	Above DosTol. +

After the end of dosing, the net control is automatically activated. The filled net value is displayed and must be confirmed (see chapter 4 “AutoConfirm OFF”). Only a new empty container needs to be set up and dosing needs to be restarted with key (F6) or START buttom on main cabinet.

6.3.9 Edit product list with F2

Operation	Info secondary display
Press key F2, enter password **"87185"** and confirm with ↵.	Password _
Confirm "**Selection**" database with key ↵.	Table name ↕Selection
Select the desired function "*Add record*", "*Edit record*", "*Delete record*" with the ↓ ↑ keys and confirm with ↵. **The editing process of a data record must not be interrupted by shutting down the device or removing the mains plug. A data record must always be entered in full. Data entered incorrectly can subsequently be edited at any time.**	edit record …
Enter the number of the selection or select with the ↓ ↑ keys and confirm with the ↵ key.	Select 4
Enter the description. Here you can switch the input type 123 to ABC or abc using the shift key ⇓.	Description 12kg blue can
Enter the tare weight of the empty container and confirm with the ↵ key. This weight is monitored with the set tare tolerance before starting.	Tara_kg 0.350
Change the target value or confirm the setting by pressing ↵.	Target_kg 12.1
The parameter Dos Tol - - is not used in this execution and should be set at 0.5 kg, confirm with key ↵.	DosTol-- kg 0.5
Enter the switching point for the fine flow as the distance to the target value in kg and confirm with the ↵ key.	DosTol- kg 0.1
Enter tolerance limit + as the distance from the target value in kg and confirm with the ↵ key.	DosTol+ kg 0.2
After completing all entries, exit the menu by pressing **the left arrow** key ↵.	edit record …

Database "Selection"

Select	Description	Tare_kg	Target_kg	DosTol -- kg	DosTol - kg	DosTol + kg
1	5 kg olive oil	0.28	5	0.5	0.05	0.2
2	10 kg glass cleaner	0.34	10	0.5	0.05	0.2
up to 500						

7. Prepare operation

7.1 Precautionary statement

WARNING

Risk of breaking during operation.

Inspect the pump regularly for damage

The device is not allowed to be operated if there is an damage
Replace wearing parts regularly
The pump may only be used its intended purpose

WARNING

Do not open the control/switch box. Danger from touching live parts.

Tighten loose connections. Replace damaged cables immediately.
Only carry out any work when the power supply is disconnected.
Cables must not be pinched or crushed. Cables must be laid in such a way that they do not create a tripping hazard or can be damaged.
Check electrical equipment regularly in accordance with the applicable national regulations (e.g. DGUV regulation 3 in Germany).
Work on the electrical equipment may only be carried out by authorized specialist personnel.

7.2 Preparation actions

7.2.1 First use

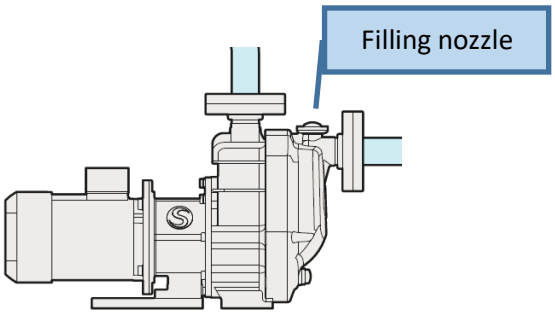
WARNING

Risk of injury and poisoning due to fluid spilling out!

Use personal protective equipment during all work on the pump

- Before first commissioning, the pump must be pre-filled with water or the medium to be pumped once.

- Open the filling stopper on the pump housing and fill the intake chamber with water or medium. Then close the filling stopper tightly.
  Dry running of the pump without liquid in the suction tank is absolutely to be avoided!



Attention
Putting the pump into operation without first filling results in dry running and damages the pump

7.2.2 Further preparatory steps

- Check that all internal screw connections on the suction and pressure side are tightly tightened. Make sure that the suction line is vacuum-tight and that no false air is drawn.

1. Main switch on control unit on ON
2. If necessary, turn emergency switch off
3. Switching on scale electronics with button: 
4. Scale turns on and zeros automatically, without putting the weight down on the weighbridge

Button functions:

 Scale electronics turn on

Delete, reset system, hold the key down longer for this

 Confirm input

 Deleting numeric inputs

7.2.3 First test run for the pump

For first filling the direction of rotation from pump motor has to be testet.

- Mind the direction of rotation indicated by an arrow on the pump. Before test, fill the pump housing and suction line with water or fluid.

ATTENTION
Dry-running will damage the pump
Do not check the direction of rotation when there is no fluid in the pump!

- Place a empty canister below the filling lance.
- Start first filling cycle
- Stop the filling cyle after some seconds by STOP button that motor is running out. Check if direction of rotation from motor fan corresponds to the direction indicated by the arrow on the fan cover.
- If necessary, exchange 2 phases at the terminal box to reverse the direction of rotation.

7.3 Priming mode

- If there is air in the suction line to the pump the pump has to evacuate the suction line before first filling.
- Place large enough canisters on the scale and start filling. After starting the pump, the pump begins to evacuate the air from the suction pipe. This process may take 2-3 minutes, depending on the length and cross-section of the suction pipe. Once the pump has lifted the fluid, fluid will be delivered to the filling lance.

WARNING

Accident risk

- Product splashes can cause serious damage to health.
- Always wear safety goggles and personal protective equipment depending on the degree of risk of the liquid used.

- If after 3-4 suction attempts there is still no medium attached to the suction no further suction attempts should be made and the cause should be found first. To this end, check:
    a. Suction pipe connected tight?
    b. Suction hose not kinked and vacuum-proof design?
    c. Can air escape on the pressure side? (Outlet valve opened)
    d. Receptacle filled?

8. Operation

8.1 Filling of containers:

WARNING

Always use personal protective equipment PPE (chemical-resistant gloves, safety goggles).

1) Adjust the filling lance to the correct canister height. To do this, loosen the locking screw and adjust the filling lance to the desired height, then tighten the locking screw again.

2) Place the desired container on the scale and adjust the canister stop so that the outlet nozzle is centrally above the canister opening. If the same canister sizes are repeatedly filled, the canister is quickly and effectively placed below the filling lance.

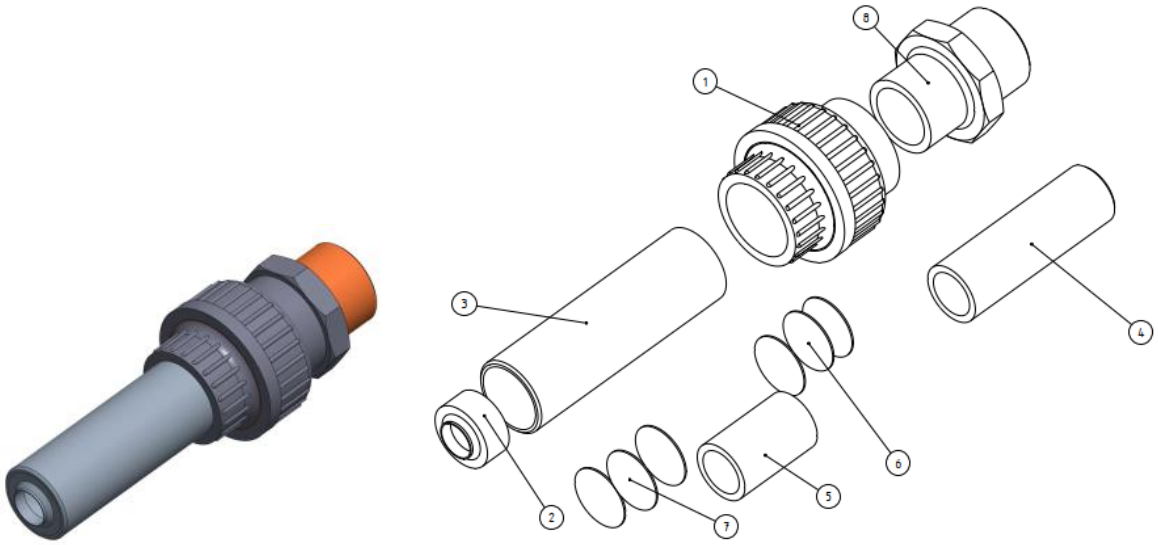
3) Start the dosing as described in section 6.3.

4) After filling, check the filling weight and, if necessary, confirm.

5) For further filling of identical containers, place a new container on the scale as described above and press the START button on the control cabinet. Filling is carried out with the same parameters as before.

8.2 Replacement of the filling nozzle

The filling head is equipped with a special outlet nozzle. Special grids on the inside bundles the filling jet and ensures a splash-free filling.



In case of malfunctions, the nozzle can be easily disassembled. To do this, pull out the union nut loops and the lower nozzle section down

Inside there are 3 fine grids (position 7) and 3 coarse grids (position 6) separated by a spacer tube. If dirt particles have accumulated on the grids remove the grids, remove the particles and reinsert the grids.

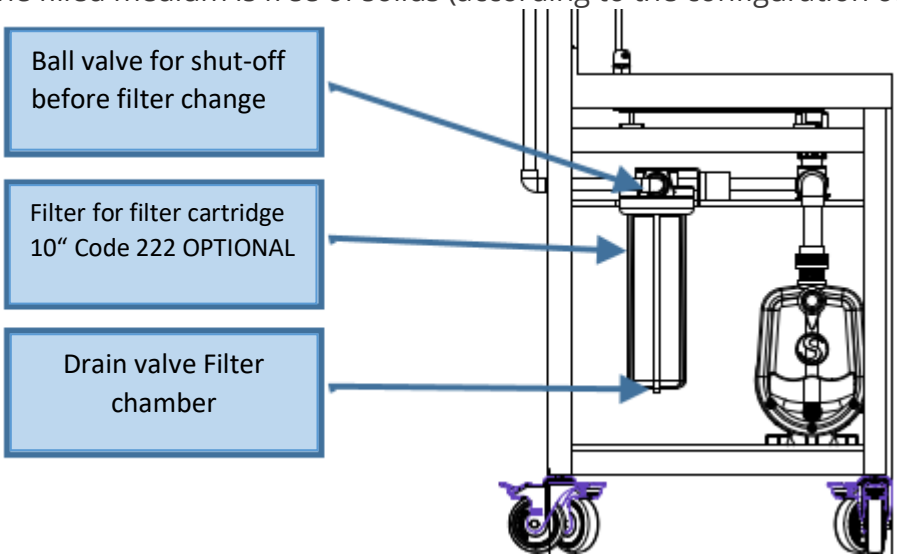
The filling nozzle is available in two different diameters:

- Outside diameter 32mm
- Outside diameter 20 mm

Thus, the filling nozzle can be adjusted according to the opening in the container to be filled.

8.3 Replacement of the filter cartridge (with filter)

Optionally, a filter chamber with a 10“ filter plug is installed in the filling line. This ensures that the filled medium is free of solids (according to the configuration of the filter cartridge used).



For changing the filter cartridge proceed as follows:

1. Switch the main switch to OFF
2. Close the ball valve in the pressure line behind the filter.
3. Open the drain valve at the bottom of the filter chamber and drain the contained fluid.
4. Unscrew the filter pot and pull it down
5. Pull the filter candle down from the seat and replace it with a new one.
6. Assembling and putting into service in reverse order.

9. Decommissioning

9.1 Regular decommissioning

After filling, the system should be flushed with DE water so that no product residue remains in the pump and the piping system.

- Connect the suction hose of the pump to a dehydrated water supply.

ATTENTION
Observe maximum system pressure 2.0 bar – higher pressure may lead to damage.

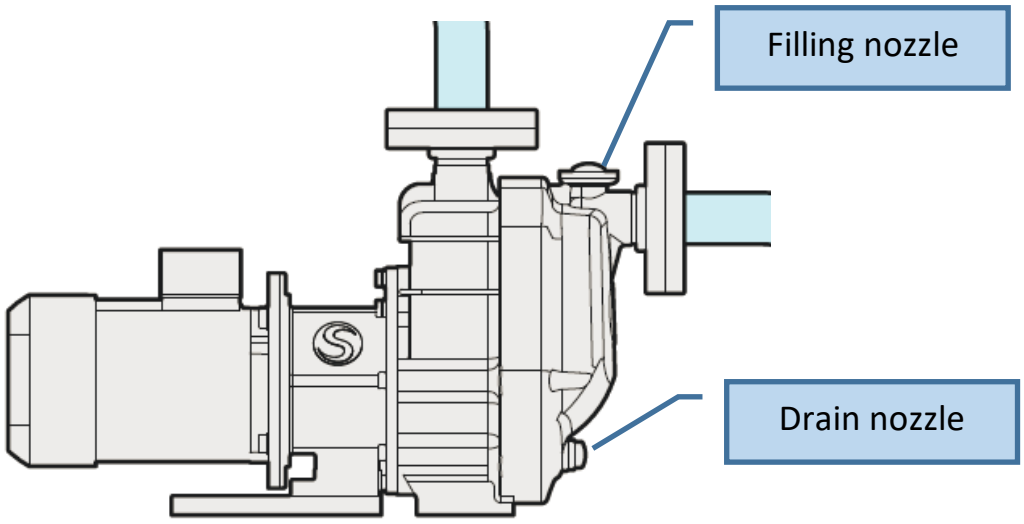
- Place the empty canister on the scale with the opening underneath the outlet nozzle.
- Opening the disinfectant water connection
- Start a filling process – choose the filling weight to fit the canister size.
- A flushing volume of at least 20 litres is recommended for a complete flush.
- After flushing, the main switch on the controller to OFF.
- Connect the DE water connection.

9.2 Prolonged phase-out

If the system is to be shut down for a longer period of time, it is advisable to drain the entire system.

- Open the drain plug at the bottom of the integrated suction tank and drain the pump. Then open the filling plug at the top of the housing and rinse the pump with water.
- •If the decommissioning is to carry out work on the pump, secure the actuator so that it cannot be switched on. Before dismantling the pump, close the suction and discharge pipe and empty the pump casing in a controlled manner.

ADVICE
Secure the fittings against accidental opening!
Wear personal protective equipment!



10. Maintenance

WARNING

Electrical hazard due to direct contact with live parts

All work may only be carried out by qualified specialist personnel in the unlocked state and secured against being switched on again.
The manufacturer's regulations must be adhered to.
Observe the safety rules for working on electrical equipment.

WARNING

Electrical hazard from touching parts that have become live due to faulty conditions

Tighten loose connections. Replace damaged cables immediately.
Only carry out any work when the power supply is disconnected.
Cables must not be pinched or crushed. Cables must be laid in such a way that they do not create a tripping hazard or can be damaged.
Check electrical equipment regularly in accordance with the applicable national regulations (e.g. DGUV regulation 3 in Germany).
Work on the electrical equipment may only be carried out by authorized specialist personnel.

WARNING

Danger due to incorrect assembly and incorrect or unauthorized spare parts

When replacing components, only use original spare parts or replacement parts approved by the manufacturer.

10.1 General note

The filling system and the installed pump are suitable for continuous operation and do not require any special maintenance. However, preventive maintenance measures are recommended.

10.2 Preventive maintenance

Filling system in general

However, check regularly at least 1 x / year:

• No visible damage / cracks on the construction and on the piping

• Tightness of the piping

• Smooth running of wheels from the filling table (optional)

• Effect of the parking brake on the castors (optional)

• Electrical wiring without visible damage / chafing points

• The function of the EMERGENCY STOP button. Press the emergency stop button while the pump is running. The pump should be switched off immediately.

Pump in general

Check regularly:

1. That there are no vibrations or abnormal noises coming from the pump.
2. That a minimum volume flow is maintained (at least 5% of maximum volume flow)
3. no change in normal operating conditions, no hot/dry running
4. Tightness of the pump/pipes
5. The pump runs free of cavitation

For further information on servicing/maintenance of the pump, see the separate MAGSON MAS operating instructions.

11. Troubleshooting

Fault	Reason	Solution
Pump does not start after switching on	No voltage	Check voltage
	Impeller blocked	Check the smooth running of the impeller. To do this, check the fan blade motor for smooth movement.
Disengaging the magnetic coupling	The specific weight and/or the viscosity of the pumped medium is too high.	Throttling of the delivery rate; Use of a stronger magnetic clutch and a more powerful motor; reduction of the impeller diameter.
	Pump was switched off and restarted before the impeller came to a stop.	The impeller must come to a stop before it can be restarted.
	Impeller blocked	Open pump head, remove blockage. Check for additional damages
Pump has loud flowing noises, Delivery rate not sufficient after start Flow rate too low	Air in suction line or housing	Fill the pump housing before the first start
	Quick-acting coupling not correctly attached and locked	Check the coupling for correct seating
	Pump is sucking air	Check the suction line for vacuum tightness and seal if necessary
Flow rate too low	Back pressure is too high	Reduce back pressure, open pressure-side valves if available
Unusual mechanical running noises Leakage between pump and motor	Housing is damaged. Damage caused by solids or dry running/hot running *	Have the pump dismantled by a specialist and repair the damage

Tab. 4: Troubleshooting

*) Background information on hot running and dry running

“Hot running” refers to the heating of the pumped medium, which is triggered by a closed pressure and/or suction line. There is liquid in the pump, but it cannot be drained away and therefore no liquid exchange can take place. The liquid is circulated within the pump housing and thereby heated. This heating can be so great that it can cause damage to the pump parts.

In order to avoid an increase in temperature, a minimum flow rate should not be less than 5% of the maximum delivery rate.

Thanks to the liquid supply in the pump chamber, the MAS can evacuate air or pump a 2-phase mixture. The evacuation process should not take longer than 10 minutes, otherwise the liquid reserve will be reduced by evaporation and the pump itself will run dry. Switch off the pump after 10 minutes without delivery.

If you have any questions about dry running / hot running, please contact us. We will be happy to advise you.

12. Annex

A) Decontamination certificate

Compliance with legal regulations on occupational safety, such as the Workplace Ordinance (ArbStättV), the Hazardous Substances Ordinance (GefStoffV), the accident prevention regulations as well as regulations on environmental protection, such as the Waste Act (AbfG) and the Water Resources Act (WHG) obliges everyone to protect commercial companies, their employees, people and the environment from harmful effects when handling dangerous substances.

We therefore ask you to provide us with a clearance certificate when sending a pump or pump parts for repair, which shows that the pump/parts were cleaned and rinsed well with a neutral medium before shipping. This does not affect us, but we reserve the right to refuse to accept the repair order for other reasons.

An inspection/repair of FLUX products and their parts will therefore only take place if we have this certificate. (See following page)

Pumps that have been operated in radioactively contaminated media are generally not accepted.

If, despite careful emptying and cleaning of the pump, safety precautions are still necessary, the necessary information must be provided upon submission.

Clearance certificate

We, the undersigned, hereby order the following pump and its accessories to be inspected/repaired together with this certificate of safety:

Type:

.....

.....

Nr.:

.....

Delivery date:

.....

Reason for submission:

.....

.....

Explanation:

The pump was not used for media that are hazardous to health

☐ The following media were pumped:

.....

.....

☐ The pump was carefully emptied and cleaned inside and out before shipping

☐ No special safety precautions are required

☐ The following safety precautions regarding residual liquid and disposal are required

.....

.....

Date: Signature:

FLUX-GERÄTE GMBH
Process Pumps & Systems
August-Horch-Straße 2
51149 Cologne - Germany

Phone: +49 2203 9394-0
Telefax: +49 2203 9394-48

Info-process@flux-pumpen.de
www.flux-pumps.com

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